

# REPORT ON OIL ENGINE MACHINERY.

No. 10,409

1 JUL 1930

Received at London Office

Date of writing Report

When handed in at Local Office

30-6-1930 Port of Belfast

No. in Survey held at Reg. Book.

Belfast

Date, First Survey 27 August 1928 Last Survey 20 June 1930

Number of Visits 250

16789 on the <sup>Simple</sup> Twin <sup>Triple</sup> Screw vessel

BRITANNIC

Tons { Gross Net

Built at Belfast By whom built Harland & Wolff Ltd. Yard No. 807 When built 1920

Engines made at Belfast By whom made Harland & Wolff Ltd. Engine No. 807 When made 1920

Donkey Boilers made at Liverpool By whom made Babcock & Wilcox Ltd. Boiler No. 70/1005-6-7-8-9 When made 1920

Brake Horse Power Owners Oceanic Steam Navigation Co. (White Star Line) Port belonging to Liverpool

Nom. Horse Power as per Rule 4214 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

Trade for which vessel is intended Ocean. Gen. 3376-63

L ENGINES, &c.—Type of Engines Harland & Wolff - Brit. Diesel 2 or 4 stroke cycle Single or double acting double

Maximum pressure in cylinders 500 lb. Diameter of cylinders 840 mm. Length of stroke 1600 mm. No. of cylinders 20 No. of cranks 20

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 1194 mm. Is there a bearing between each crank Yes

Revolutions per minute 102 Flywheel dia. 200 metric Weight 5.5 Tons Means of ignition Compression Kind of fuel used Diesel oil

Crank Shaft, dia. of journals as per Rule approved as fitted 635 bore 230 mm. Crank pin dia. 635 bore 230 mm. Mid. length breadth 1650 mm Thickness parallel to axis 385 mm

Crank Shaft, dia. of journals as fitted 685 mm. Intermediate Shafts, diameter as per Rule approved as fitted 19" Thrust Shaft, diameter at collars as per Rule approved as fitted 20 1/2"

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Screw Shaft, diameter as per Rule approved as fitted 21" Is the shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per Rule 15/16" as fitted 1 7/8" Thickness between bushes as per rule 29" as fitted 32"

Is the after end of the liner made watertight in the propeller boss Yes If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner

Does the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

If two liners are fitted, is the shaft lapped or protected between the liners Is an approved Oil Gland or other appliance fitted at the after end of the tube

Length of Bearing in Stern Bush next to and supporting propeller 94 3/8"

Propeller, dia. 20'6" Pitch 20'6" No. of blades 3 Material Trans. Cr. whether Moveable Yes Total Developed Surface each 110 sq. feet

Method of reversing Engines Direct acting engine a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication forced

Thickness of cylinder liners 50 mm. Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with

conducting material Yes If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine

Drinking Water Pumps, No. 4 Horiz. Centrif. 10" bore Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

Large Pumps worked from the Main Engines, No. None Diameter Stroke Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line No. and Size Two 6" 180 Tons, One 7" 180 Tons, Two 8" 300 Tons, Vert. Centrifugal. How driven Electric Motor.

Small Pumps, No. and size Two 8" Vert. Cent. 300 Tons Lubricating Oil Pumps, including Spare Pump, No. and size Two 12" Vert. Cent. 320 Tons

Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Pumps, No. and size:—In Machinery Spaces Main Motor Room Two 4" Eight 2 1/2" Aux. Motor Room Two 4" Two 2 1/2" Boiler Room One 2 1/2" Forward Funnel One 3 1/2" Aft Funnel One 3 1/2" Two 2 1/2"

Holds, &c. No. 1 Two 4" No. 2 Two 4" No. 3 Two 4" No. 4 Eight 4" No. 5 Two 4" One 2 1/2" No. 6 Two 4" One 2 1/2" No. 7 One 4" Two 2 1/2" No. 8 Two 4"

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size Coppardams Two 4" Nine 2 1/2" Five 7"

Are all the Bilge Suction pipes in Holds and Trunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces

from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes

Are all Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Yes

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes Are the Overboard Discharges above or below the deep water line below

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes

Do pipes pass through the bunkers None How are they protected

Do pipes pass through the deep tanks None Have they been tested as per Rule

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one

compartment to another Yes Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from 'C' deck

On a good vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

Air Compressors, No. Four (Twin Act.) No. of stages Three Diameters 860. 775. 172 mm. Stroke 400 mm. Driven by Separate diesel units

Large Air Compressors, No. One No. of stages Two Diameters 180. 54 mm. Stroke 115 mm. Driven by Steam.

Auxiliary Air Compressors, No. One No. of stages Two Diameters 180. 54 mm. Stroke 115 mm. Driven by Steam.

Engining Air Pumps, No. None Diameter Stroke Driven by

Large Engines crank shafts, diameter as per Rule approved as fitted 300 mm.

RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule Yes and/or fusible plug.

Are the internal surfaces of the receivers be examined Yes What means are provided for cleaning their inner surfaces Open-ended

Is there a drain arrangement fitted at the lowest part of each receiver Yes

Pressure Air Receivers, No. 16 Cubic capacity of each 12-550 litres 4-150 litres Internal diameter 520 mm 295 mm thickness 19 mm 15 mm

Are the receivers lap welded or riveted longitudinal joint Seamless Material Steel Range of tensile strength 28-32 Tons Working pressure by Rules 1126 lbs.

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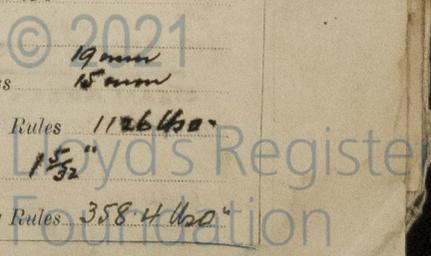
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IS A DONKEY BOILER FITTED? *Five Waste Heat Boilers (Clarkson)* *Two Scotch type* If so, is a report now forwarded? *Yes*

PLANS. Are approved plans forwarded herewith for Shafting *Yes* Receivers *Yes* Separate Tanks *Yes*  
(If not, state date of approval)

Donkey Boilers *Yes* General Pumping Arrangements *Yes* Oil Fuel Burning Arrangements *Yes*

SPARE GEAR *In excess of rule requirements See attached list.*

The foregoing is a correct description  
 For HARLAND AND WOLFF, LIMITED,  
*DeLobbeck* Manufacturer.

1929  
 Dates of Survey while building  
 During progress of work in shops -  
 During erection on board vessel -  
 Total No. of visits 250

Dates of Examination of principal parts -  
 Crank shafts 27. 2. 29  
 Flywheel shaft ✓  
 Thrust shafts 16. 6. 29  
 Intermediate shafts 21. 6. 29  
 Tube shaft ✓  
 Pistons 7. 8. 29  
 Rods 29. 7. 29  
 Connecting rods 20. 6. 29

Screw shaft 10. 5. 29  
 Propellers 4. 5. 29  
 Stern tube 9. 5. 29  
 Engine seatings 14. 8. 29  
 Engines holding down bolts 16. 12. 29

Completion of fitting sea connections 6. 8. 29  
 Completion of pumping arrangements 26. 5. 30  
 Engines tried under working conditions 26. 5. 30

Crank shaft, Material S.M. STEEL Identification Mark No 336 68 R.L.A. Flywheel shaft, Material ✓ Identification Mark 323, 375, 1024, 1425, 1479, 1520, 1662, 1705, 276, 387, 1454, 1496, R.L.A.  
 Thrust shaft, Material S.M. STEEL Identification Mark No 708 714 R.L.A. Intermediate shafts, Material S.M. STEEL Identification Marks 789, 714 R.L.A.  
 Tube shaft, Material S.M. STEEL Identification Mark ✓ Screw shaft, Material S.M. STEEL Identification Mark No 1024 R.L.A.

Is the flash point of the oil to be used over 150° F. *Yes*

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with *Yes*

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *Yes* If so, have the requirements of the Rules been complied with *Yes*

Is this machinery duplicate of a previous case *No* If so, state name of vessel */*

General Remarks (State quality of workmanship, opinions as to class, &c.)  
*The machinery of this vessel has been constructed under special survey. The materials & workmanship are sound and good. The main engines and the auxiliaries have been tried out under working conditions with satisfactory results. In my opinion the vessel is now eligible for notation in the Society's Register Book - L.M.C. 6.30 C.L. Two Donkey Boilers pressure 150 lbs. Five Waste Heat Boilers pressure 100 lbs. Fitted for oil fuel 6.30 F.P. not to exceed 150°F. Electric light.*

It is submitted that  
 this vessel is eligible for  
 THE RECORD. + L.M.C. 6.30 C.L.  
 Oil Engines 45C.DA 20 Cy. 33 1/16 - 63"  
 N.H.P. 214. 2DB 150 1/16 5DB (upper) 100 1/16

*R. Lee Amess*  
 8/7/30

Certificate (if required) to be sent to (The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee ... £ 6 : - : When applied for, 26-6-1930  
 Special ... £ 205 : 7 :  
 Donkey Boiler Fee ... £ 11 : 18 :  
 AIR RESERVOIRS ... £ 16 : 16 :  
 Travelling Expenses (if any) ... £ 2 : 2 :  
 STEAM RESERVOIR ...  
 Committee's Minute FRI. 11 JUL 1930  
 Assigned + L.M.C. 6.30 Oil Engines C.L.

